

## Claims

1. A method of radio transmission of real-time IP packets using header compression, comprising:

header-compressing the RTP packets, to obtain header-compressed RTP packets having a plurality of different header compression lengths;

pre-configuring header compression lengths and length types required by the system; and

PDU-size adapting the plurality of different header compression lengths of the header-compressed RTP packets, so as to comply with said lengths and length types required by the system.

2. A method according to Claim 1, wherein the step of header-compressing an RTP packet further comprising:

marking a compressed header and an RTP payload, and separating the compressed header from the RTP packet based on said marking before PDU-size adapting the header-compressed RTP packet, and then PDU-size adapting the separated compressed header.

3. A method according to Claim 2, further comprising, after separating the compressed header from the RTP payload based on said marking, further dividing the RTP payload into blocks of different error sensitivities based on the RTP payload format information, then PDU-size adapting the separated compressed header.

4. A method according to Claim 3, further comprising, after dividing the RTP payload into blocks of different error sensitivities, combining the compressed header with at least one data blocks of the RTP payload, then PDU-size adapting the data blocks containing said compressed header.

5. A method according to any one of preceding claims, further comprising applying a UEP mechanism to the separated compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks.

6. A method according to any one of preceding claims, further comprising mapping the separated compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks to different RLC entities for transmission.

7. A method according to any one of preceding claims, further comprising transmitting the compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks on the same transmission time interval, and configuring corresponding transport channels thereof as "coordinated dedicated transport channels".

8. A method according to any one of preceding claims, further comprising receiving and extracting, at a receiving end, the compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks, from RLC entity SDU corresponding to the compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks, respectively.

9. A method according to Claim 8, further comprising combining the extracted compressed header and the RTP payload, or the separated compressed header and the data blocks of the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks, into a complete RTP packet.

10. A method according to any one of preceding claims, wherein the lengths and length types required by the system depend on a tradeoff between transmission efficiency and TFCI decoding reliability.

11. A method according to any one of preceding claims, wherein the RLC entity is a TM mode RLC entity.

12. A system of radio transmission of real-time IP packet using header compression, comprising:

header compression unit for header-compressing RTP packets, to obtain header-compressed RTP packets having a plurality of different header compression lengths;

configuring unit for pre-configuring header compression lengths and length types required by the system; and

radio link adaptation unit for PDU-size adapting the plurality of different header compression lengths of the header-compressed RTP packets, so as to comply with said lengths and length types required by the system.

13. A method of transmitting real-time IP packets using header compression, comprising:

header-compressing RTP packets and marking a compressed header and an RTP payload;

separating the compressed header from the RTP payload based on said marking, to respectively form PDCP layer PDUs before mapping them to different RLC entities; and

transmitting the separated compressed header and RTP payload.

14. A method according to Claim 13, further comprising after separating the compressed header from the RTP payload, PDU-size adapting the compressed header, such that the plurality of different header compression lengths obtained when header-compressing the RTP packet are adapted to lengths and length types required by the system, and then making the PDU-size-adapted compressed header and the RTP payload to respectively form PDCP layer PDUs before mapping them into different RLC entities.

15. A method according to Claim 13 or 14, further comprising, after separating the compressed header from the RTP payload, further dividing the RTP payload into blocks of different error sensitivities based on RTP payload format information.

16. A method according to any one of preceding claims, further comprising combining the separated compressed header with at least one data blocks of the RTP payload, and PDU-size adapting the data blocks containing said compressed header.

17. A method according to any one of preceding claims, further comprising applying a UEP mechanism to the separated compressed header and the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks.

18. A method according to any one of preceding claims, further comprising transmitting the separated compressed header and the RTP payload, or the data blocks containing the compressed header and the remaining RTP payload data blocks on the same transmission time interval, and configuring the corresponding transport channels thereof as "coordinated dedicated transport channels".

19. A method according to any one of preceding claims, wherein the RLC entity is a TM mode RLC entity.

20. A method of receiving real-time IP packets using header compression,

wherein a compressed header of the header-compressed packet is separated from an RTP payload thereof at the transmitting end to form different PDCP layer PDUs that are transmitted on different RLC entities, said method comprising:

receiving and extracting the compressed header and the RTP payload from SDUs of the RLC entities; and

combining the extracted compressed header with the RTP payload.

21. A system of transmitting a real-time IP packet using header compression, comprising:

header compression unit for header-compressing RTP packets and marking a compressed header and an RTP payload;

radio link adaptation unit for separating the compressed header from the RTP payload based on said marking, to respectively form PDCP layer PDUs before mapping them to different RLC entities; and

transmitting unit for transmitting the separated compressed header and RTP payload.

22. A system of receiving a real-time IP packet using header compression, wherein a compressed header of the header-compressed packet is separated from an RTP payload thereof at the transmitting end to form different PDCP layer PDUs that are transmitted on different RLC entities, said system comprising:

receiving and extracting unit for receiving and extracting the compressed header and the RTP payload from SDUs of the RLC entities; and

radio link adaptation unit for combining the extracted compressed header with the RTP payload.

23. An RTCP packet scheduling method, comprising:

monitoring whether or not the bandwidth requirement of the RTP packet exceeds a predetermined value;

if the bandwidth requirement of the RTP packet exceeds the predetermined value and there is an RTCP packet to be transmitted, buffering the RTCP packet;

continuously monitoring the bandwidth requirement of the RTP packet, and transmitting the RTCP packet when the bandwidth requirement is lower than the predetermined value.

24. A method according to Claim 23, wherein the bandwidth requirement

being lower than the predetermined value comprises the case where the compression rate of the RTP packet is so high that the bandwidth requirement is lower than the predetermined value.

25. A method according to Claim 23, wherein the bandwidth requirement being lower than the predetermined value comprises the case where no RTP packet is transmitted.

26. An RTCP packet scheduling system, comprising:

bandwidth monitoring means for monitoring whether or not the bandwidth requirement of the RTP packet exceeds a predetermined value;

judging means for judging, whether the bandwidth requirement of the RTP packet exceeds the predetermined value and there is an RTCP packet to be transmitted;

buffering means for buffering the RTCP packet, in response to the result of the judging means that the bandwidth requirement of the RTP packet exceeds the predetermined value; and

transmitting means for transmitting the RTCP packet, in response to the result of the judging means that the bandwidth requirement of the RTP packet does not exceed the predetermined value.